

## Activity 2

### Detecting Earthquake Waves

#### Think About It

Page G131

Date

Page #

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- What specific observations would you want to make to study an earthquake?
- How could you detect and record the arrival of earthquake waves: P waves, S waves, and surface waves?



# WHAT DO YOU THINK?

## Activity 2 Detecting Earthquake Waves

### Digging Deeper

Page G 134-136

Date

Page #

#### Seismometer

an instrument that measures seismic waves

Recording seismic waves

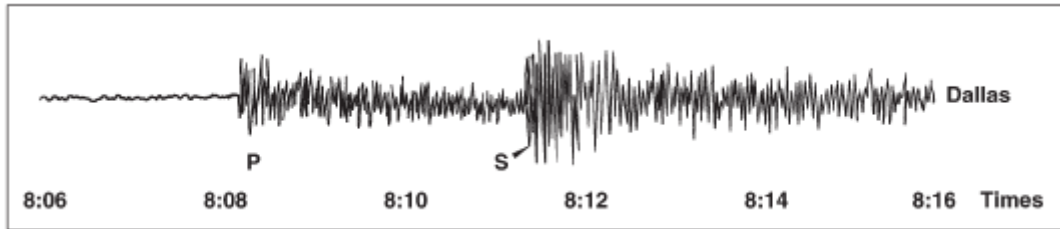
it takes three seismometers to record all the motions of the ground during an earthquake:

- two record sideways motions (north-south, east-west)
- one records vertical motions (up-and-down)



## Seismogram

a record of earthquake waves made by a seismometer

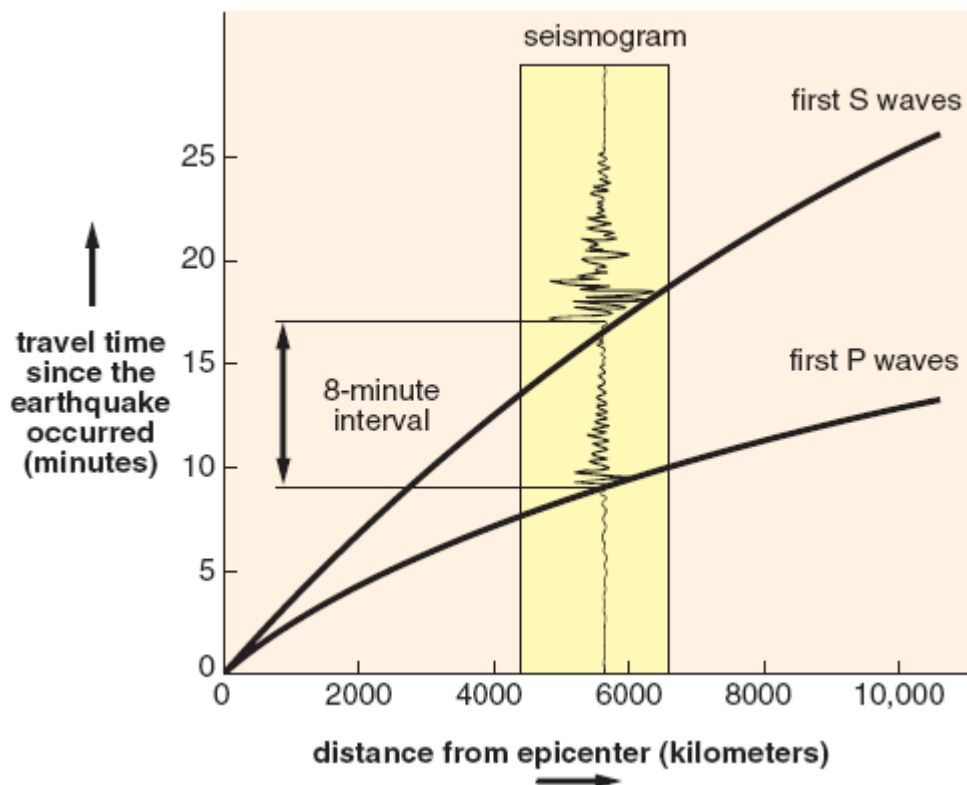


P waves

travel the fastest through the Earth, so they arrive first at a location

S waves

arrive shortly after P waves



**Magnitude**

a measure of the amount of energy released during an earthquake

**Richter scale**

measures the strength of an earthquake

Plate boundaries

have high concentrations of earthquakes

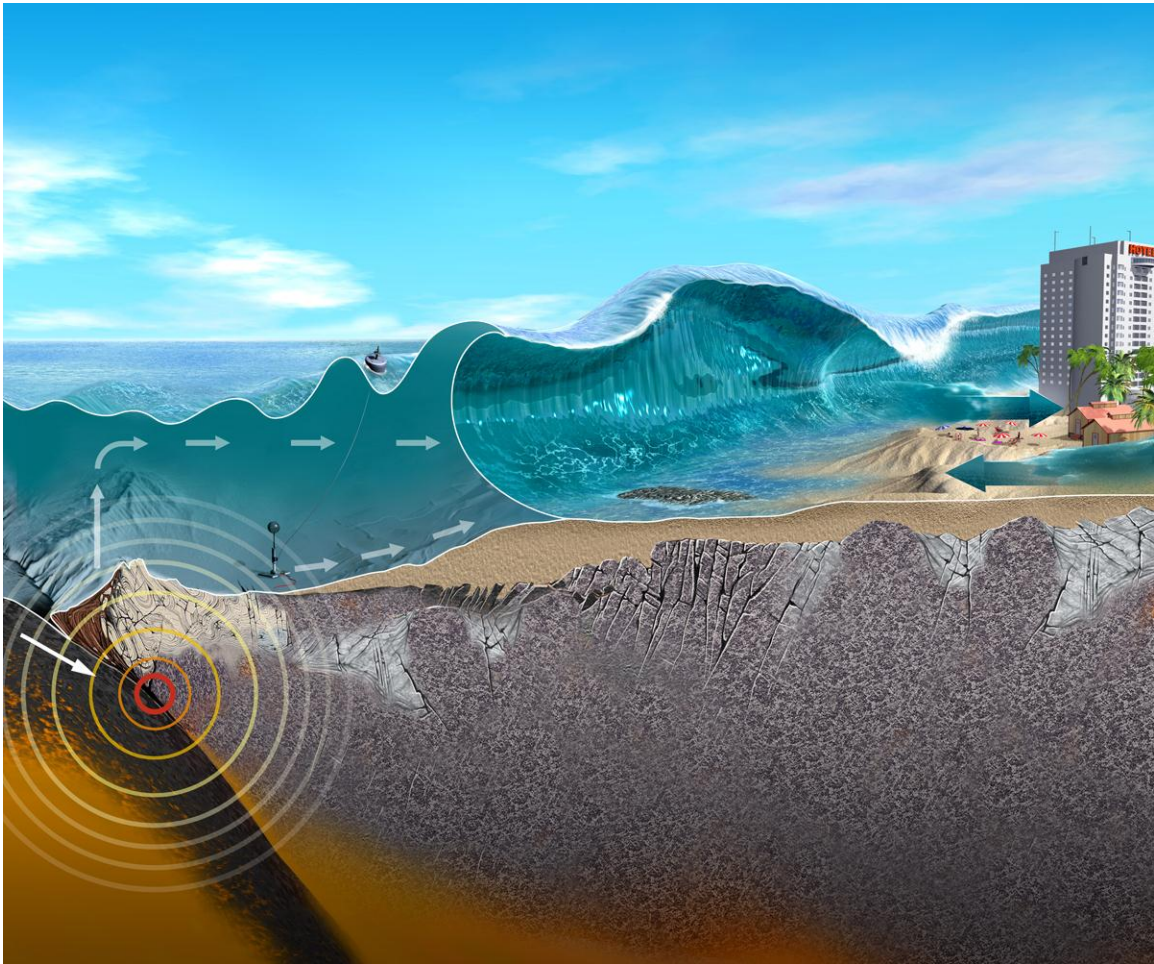
Earthquake hazards

- collapse of buildings
- broken power lines, roads, bridges, pipelines
- fires and explosions
- landslides
- flooding
- tsunamis

**Tsunami**

a large ocean wave caused by an earthquake or landslide





<http://www.youtube.com/watch?v=dJBS94GVyuo&edufilter=tbARfBHuyG3mpAruEjLFww>

<http://www.youtube.com/watch?v=oWzdgBNfhQU&edufilter=tbARfBHuyG3mpAruEjLFww>

<http://www.youtube.com/watch?v=1J8Feyr38Ss>

<http://www.youtube.com/watch?v=aVeEQhCATYs>

Activity 2  
Detecting Earthquake Waves  
**Check Your Understanding**

Page G136

Date

Page #

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1. What is the function of a seismometer?

2a. How many seismometers do you need at a given place to fully record the motions arising from earthquake waves?

2b. How should these seismometers be oriented and why?

3. What is a seismogram?

4. What information is provided by a travel-time curve?